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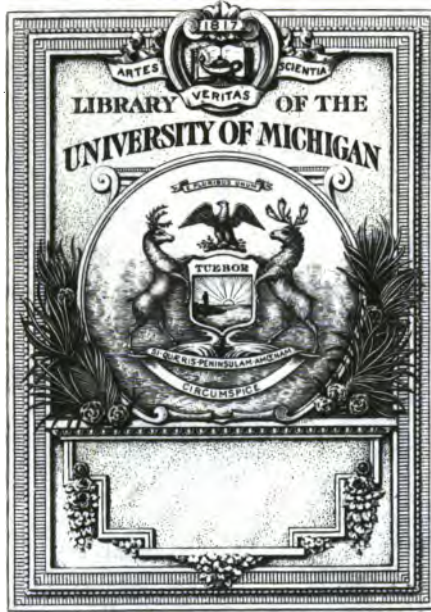
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# JOINT REPORT

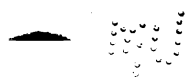
OF THE

INTERNATIONAL WATERWAYS

COMMISSION.

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NOVEMBER 15, 1906.



JOINT REPORT

OF THE

INTERNATIONAL WATERWAYS

COMMISSION. *(U. S. and Canada)*

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NOVEMBER 15, 1906.

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# JOINT REPORT

OF THE

## INTERNATIONAL WATERWAYS COMMISSION.

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Buffalo, N. Y., November 15th, 1906.

To The Honorable, The Minister of Public Works of Canada, and  
To The Honorable, The Secretary of War of the United  
States:

The International Waterways Commission has the honor to submit the following report on the application of the International Development Company for permission to construct regulating works in the Richelieu River, referred to it by endorsement of the Honorable Secretary of War of the United States, dated November 6th, 1906.

The applicants are the assignees of a Charter granted by Special Act of the Parliament of the Dominion of Canada to the Lake Champlain and St. Lawrence Ship Canal Company (Statutes of Canada, 1898, Chapter 107), which has been extended by two enactments, the last of which, in the year 1905 (Statutes of Canada, Chapter 116), extends the time for commencing the works of the Company to the year 1908.

No plans of the proposed works have been submitted, and it is understood that none have been made. The works are to

be located in Canadian territory and can be built only with the authority and approval of the Canadian Government. It is supposed that proper plans will in due season be submitted to that Government. The works will, however, affect the levels of Lake Champlain, and may thus seriously affect the navigation or property interests of American citizens on that lake. The Company submits a preliminary statement showing in general what is proposed to be accomplished, and the supposed effect upon Lake Champlain, with a view to ascertain what the attitude of the United States Government will be towards the enterprise, and it is that which has been referred to us.

It is ascertained from this statement that for navigation and power purposes a continuous flow of not less than 9,000 cubic feet per second is desired in the Richelieu River. The average annual flow is greater than this, being about 12,700 cubic feet per second. The low water discharge is about 3,800 cubic feet per second, and there are periods, sometimes extending over six or eight months, when the discharge is continuously less than 9,000. It is proposed to store up in Lake Champlain during the high water season enough of the surplus water to supply the deficiency during the low water season. For this purpose regulating works are to be constructed in the Richelieu River by which the level of Lake Champlain will be maintained at a minimum of 97 feet above tide at New York; and it is stated that these works will not under any circumstances raise the high water level of Lake Champlain above "the present high "water mark," given as 101.5. Thus it is proposed to give the Lake a range of 4.5 feet.

On page 324 of the Report of the Board of Engineers upon Deep Waterways between the Great Lakes and the Atlantic Tide Waters is a tabular statement of the monthly mean discharge of Lake Champlain for the years 1875 to 1898, inclusive. An examination of this table shows that the period which gave the lowest discharge extended from September, 1882, to March, 1883; that which gave the next lowest extended from September, 1876, to March, 1877; that which gave the third lowest extended from September, 1883, to February, 1884; and that which gave



the fourth lowest extended from August, 1894, to March, 1895. During these periods the amount flowing was less than 9,000 cubic feet per second, and in order to maintain that flow it would have been necessary to draw, from water previously stored for the purpose, the difference between 9,000 cubic feet and the amount which actually flowed.

	Cubic Feet.
The Deficiencies for the First Period were. . . . .	58,803,840,000
Those for the Second Period were. . . . .	55,572,480,000
Those for the Third Period were. . . . .	51,278,400,000
Those for the Fourth Period were. . . . .	46,759,680,000

The area of Lake Champlain is 436.7 square miles, or 12,174,497,280 square feet. The depth required to store the deficiency during the first of the above periods is 4.81 feet; that for the second period is 4.56 feet; for the third period it is 4.21 feet; and for the fourth period it is 3.84 feet. Adding 1.25 for evaporation in eight months, those depths become 6.06, 5.81, 5.46 and 5.09 respectively. The range proposed, 4.5 feet, will therefore not be sufficient to provide 9,000 cubic feet per second throughout the low water season in very dry years.

A range much greater cannot be admitted without inflicting damage either upon the riparian owners or the navigation interests of Lake Champlain. In determining what is a proper high water and what a proper low water stage in this connection, it is not fair to take the extremes which the Lake may have reached at long intervals in its history. A high water stage reached once in twenty years, for example, might inflict damage to property without destroying it, while if reached every year it might cause complete destruction; likewise the obstruction to navigation caused by an extreme low water stage would be greatly multiplied if repeated every year.

The table on page 323 of the Report on Deep Waterways quoted above, gives the monthly mean stages of Lake Champlain from 1875 to 1898. The highest stage there recorded is 100.13 for the month of April, 1896. Upon only two other occasions

did the stage reach 100. To raise the level above 100 regularly every year would be to inflict an injury upon the riparian proprietors.

The mean elevation of the Lake for the entire period was 96.10. The lowest stage reached was 93.65. During seven years it did not fall below 95. To allow the Lake to be drained below 95 every year would be to inflict injury upon the navigation interests.

The limits between which the Lake should be regulated are, therefore, 100 as a maximum and 95 as a minimum, notwithstanding that the reserve of water will not in very dry years be sufficient to supply 9,000 cubic feet per second.

As Lake Champlain is wholly within the territory of the United States, and the proposed works are wholly within Canadian territory, the international questions raised are of some moment. It is, in our opinion, not desirable that either nation should obstruct the natural flow of streams crossing the international boundary to the injury of public or private rights in the other. It is manifest, therefore, that the applicants should furnish conclusive evidence that private rights in the States of New York and Vermont adjoining Lake Champlain will not be injuriously affected by the alteration of the lake level as proposed, and that as the Secretary of War of the United States has control of the interests of navigation on Lake Champlain, the said work should not be undertaken without his permission, and should be operated under such regulations as he may direct with a view to the maintenance of the level of the said Lake as the interests of navigation thereon may require. It would be possible to plan works adapted to the conditions, and in our opinion such works should be permitted, provided they do not interfere with private interests in the United States and meet with the approval of the Secretary of War as suggested. We respectfully submit that in any treaty to be had between the two nations in relation to the use of international waters, the principles above suggested should have consideration. We would further suggest that the applicants' Canadian Act of Incorporation should be amended so as to provide that the

maintenance of the works sought to be erected shall be conditional at all times upon compliance with all regulations imposed by the Secretary of War of the United States of America, from time to time for the preservation of the levels of Lake Champlain.

All of which is respectfully submitted.

GEO. C. GIBBONS,  
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